

4.5 ENVIRONMENTAL JUSTICE IN MINORITY AND LOW-INCOME POPULATIONS

Pursuant to Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, this section identifies and addresses any disproportionately high and adverse human health or environmental effects on minority and low-income populations from activities described in previous sections of the PEIS. DOE is in the process of finalizing its Environmental Justice guidance. Because DOE is still in the process of developing guidance, the approach taken in this analysis may differ somewhat from whatever final guidance is eventually issued, and from the approach taken in other NEPA documents.

4.5.1 METHODOLOGY

Potential environmental justice impacts are assessed using a phased approach. This approach establishes four thresholds for assessing whether environmental justice issues are likely to arise as a result of proposed DOE activities. As described in DOE's draft guidance on incorporating environmental justice into the NEPA process, the following four questions form the framework and establish the thresholds for the phased approach to environmental justice analysis:

- Are there any potential impacts to human populations?
- Are there any potential impacts to minority populations or low-income populations?
- Are potential impacts to minority populations or low-income populations disproportionately high and adverse?
- Are any potential disproportionately high and adverse impacts "significant?"

Environmental Justice guidance developed by the Council on Environmental Quality (CEQ) defines "minority" as individual(s) who are members of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black, not of Hispanic origin, or Hispanic (CEQ 1996a). Minority populations are identified when either the minority population of the affected area exceeds 50 percent or the percentage of minority population in the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis. Low-income populations are identified using statistical poverty thresholds from the Bureau of Census' Current Population Reports, Series P-60 on Income and Poverty.

Environmental justice impacts become issues of concern if the proposed activities result in disproportionately high adverse human and environmental effects to minority and low-income populations. Disproportionately high and adverse human health effects are identified by assessing these three factors to the extent practicable:

- Whether the health effects, which may be measured in risks or rates, are significant (as employed by NEPA) or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death;
- Whether the risk or rate of exposure by a minority population or low-income population to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and
- Whether health effects occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards.

Previous sections in Chapter 3 describe employment and income, population, housing, and community services surrounding each site. Income distribution is presented in this section. Impacts for each ROI from implementation of proposed alternatives are analyzed in Chapter 4. Selected ROI demographic characteristics for racial/ethnic minority groups and low income populations are presented in Tables 4.5.1-1 through 4.5.1-7. [Text deleted.]

Any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations that could result from the storage and disposition alternatives being considered are assessed for an 80-km (50-mi) area surrounding each of the eight DOE sites. [Text deleted.] The shaded areas in Figures 4.5.1-1, 4.5.1-3, 4.5.1-5, 4.5.1-7, 4.5.1-9, 4.5.1-11, 4.5.1-13, and 4.5.1-15 show 1990 Census tracts for each DOE site where racial/ethnic minorities comprise 50 percent or more (simple majority) of the total population, or where minorities comprise less than 50 percent but greater than 25 percent of the total population in the Census tract. Figures 4.5.1-2, 4.5.1-4, 4.5.1-6, 4.5.1-8, 4.5.1-10, 4.5.1-12, 4.5.1-14, and 4.5.1-16 show low-income communities generally defined as those where 25 percent or more of the population is characterized as living in poverty (income of less than \$8,076 for a family of two). Data on geographic distribution of low income and minority populations and prevailing wind conditions are used to assess whether toxic/hazardous pollutants and radiological releases from the proposed actions would be emitted disproportionately in the direction of these populations. This assessment is then used to identify whether any of the alternatives would cause disproportionately high and adverse effects to minority or low income populations in the vicinity of the sites.

Potential Impacts on Minority and Low-Income Populations From Subsistence Consumption of Fish and Wildlife

Section 4.4 of Executive Order 12898 directs Federal agencies, "whenever practical and appropriate, to collect and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence and that federal agencies communicate to the public the risks of these consumption patterns."

The potential environmental impacts of DOE activities on populations engaging in subsistence consumption could vary greatly depending on the precise location of a storage or disposition facility at a particular site, and the technology employed for the treatment or disposal of wastes at such a facility. In a prior NEPA review, incorporated herein by reference, DOE reviewed fish and wildlife consumption at Hanford, NTS, INEL, ORR, and SRS. At these sites, DOE found the potential impacts associated with the consumption of fish and wildlife to be small or to be no different than the potential impacts on the general population (DOE 1995v:5.20-11).

With regard to the impacts analyzed in this PEIS, and in the absence of subsistence consumption data by population sub-groups, DOE used the following criteria and assumptions, weighted in order of importance, to identify groups of sites that may be near minority and low-income populations potentially engaging in subsistence consumption:

- Proximity of Tribal Lands to DOE sites (the presence of Native Americans near DOE sites is assumed to create a greater possibility for subsistence consumption)
- Distance of the DOE site to major surface water bodies (populations nearer water are assumed to have a greater possibility of subsistence consumption of fish)
- Population density in the 80-km (50-mi) ROI around the site (rural residents are assumed to have a greater possibility of engaging in subsistence hunting and fishing)
- Proximity and concentration of minority and low-income populations to DOE sites (higher concentrations of minority and low-income populations are assumed to have a greater potential for subsistence consumption)

The eight DOE sites considered in this PEIS can be loosely categorized into three groups: those with the highest possibility for subsistence consumption, those with intermediate possibilities for subsistence consumption, and those with the lowest possibilities for subsistence consumption. Populations around more rural sites with recognized Native American groups are assumed more likely to engage in subsistence hunting and fishing. These sites include Hanford, INEL, LANL, and SRS. Although the areas around RFETS and NTS are more urban, these sites are of intermediate concern due to the presence of Native American populations or the presence of surface water onsite. ORR and Pantex are considered to have a lower possibility of populations who principally rely on fish and/or wildlife for subsistence, since there are no Federally recognized Native American groups around these two sites.

In order to assemble and disseminate information on subsistence hunting and fishing, DOE began publishing *A Department of Energy Environmental Justice Newsletter: Subsistence and Environmental Health* in the Spring of 1996. The three goals of the newsletter are (1) "to provide useful information about the health implications of consuming contaminated fish, wildlife, livestock products, or vegetation;" (2) "to provide information about projects and programs at DOE and other Federal and State agencies that address the problems associated with consuming contaminated fish, wildlife, livestock products, or vegetation;" and (3) "to receive relevant information from readers." In addition to the Newsletter, DOE has a new project underway to identify what information is being collected on subsistence consumption by other Federal agencies and to serve as a clearinghouse for such information.

In a recent article reviewing the literature on subsistence consumption, ANL found that (1) "the majority of the studies that have been conducted to date are focused on site- or region-specific exposure concerns...At present, it is unclear whether the findings of these studies are representative of consumption and exposure levels among minority populations at a national level;" (2) a large number of risk assessment studies focusing on fish and wildlife consumption examined whole populations without distinguishing between consumption and exposure patterns of specific ethnic (or other) subpopulations;" (3) "the vast majority of studies have focused on fish consumption as an exposure pathway. Few examined wildlife consumption and contamination, and even in such cases the studies were not motivated by minority exposure concerns;" and (4) "the majority populations to be significantly higher than for the population as a whole" (ANL 1994a:1).